POWER INFUSER®
END-USER PERFORMANCE TEST PROCEDURE

This test may be performed as needed to ensure the Power Infuser is operating according to the manufacturer's specifications.

This test applies to

- Power Infuser model M100 (part no. 0040-0010, NSN 6515-01-466-1478)
- Power Infuser model M100B (part no. 0040-0012, NSN 6515-01-472-3246)
- Power Infuser model M100B–3A (part no. 0040-0013, NSN 6515-01-499-5112)

Additional materials needed to perform test

- A Power Infuser crystalloid/colloid cartridge with pump-to-patient tube set, unused (part no. 0040-0050, NSN 6515-01-466-1488)
- A power source for the pump, M100/M100B battery pack (part no. 0040-0061, NSN 6515-01-466-1490), M100B-3A AAA alkaline battery pack (part no. 0040-0062, NSN 6515-01-498-1114) or AC/DC power adapter (part no. 0040-0040, NSN 6515-01-466-1481)
- A 500ml or 1000ml bag of medical-grade 0.9% saline
- IV bag spike/extension set with luer connector for bag-to-pump connection
- An 18ga peripheral IV needle or catheter (1" to 2" in length)
- A graduated cylinder or beaker with a capacity of at least 150cc and volume measurement accuracy of at least ±2 ml (for a volumetric measurement) *or* a container with a capacity of at least 150cc and a balance with an accuracy of at least ±2 grams (for a gravimetric measurement of volume)
- A stop watch or watch with second hand with an accuracy of at least ±1 second.
- Waste fluid reservoir of at least 500cc capacity.

Equipment set up

Spike IV bag and attach to input of pump cartridge, connect 18" tubing segment (included with cartridge) to output end of cartridge and attach the 18ga IV catheter (needle) to the output end of the 18" segment. Snap cartridge onto pump. Apply power to the pump (M100B-3A on/off switch, M100/M100B – slide battery pack into position). Pump audible and visual alarms will now activate. If the cartridge and IV line have not been primed, set the pump flow rate selector to 6 or BOL and hold down the start/stop button until the saline fills the entire tubing set. Clear air bubbles, particularly those on the top of the white cartridge filter. If necessary, slight tapping on the top surface of the cartridge can clear remaining air bubbles. If the IV set has been primed in advance, press the start/stop button once to clear alarms.

Note:

- After power is initially applied, there is a 10-20 second delay in silencing the alarms while the pump circuitry adjusts to the IV fluid.
- Keep IV bag/fluid source at or slightly below the output end of the 18ga catheter. A raised IV bag will cause free flow that will distort results.
- Use medical grade saline, not saline made from table salt and tap water which can contain impurities that will clog the cartridge filter and distort results.

Ensure that output end of the catheter is not butted up against the side or bottom of the beaker, as this can trigger the occlusion alarm.

- Use a new cartridge for these tests, if possible. A single cartridge and source of saline may be used to test multiple pumps in a given day, but used cartridges that sit exposed over a period of days can build up bacteria on the filter, which can distort test results. If the flow rates are lower than expected and/or the occlusion alarm is triggering occasionally under normal operation, you should suspect a clogged cartridge filter; replace cartridge and repeat tests.

Air alarm test

Press start/stop to run pump. While pump is running, eject cartridge by pushing on release mechanism. (This simulates an air bubble across the 2 electronic sensor pins. It is not possible to inject an air bubble into that space because the air elimination filters will vent any air that enters the cartridge.)

Successful result: visual and audible AIR alarm is triggered and pump stops.

Occlusion alarm test

With the cartridge and IV set cleared of air and the pump running at a setting of 6 or BOL, pinch off the pump-to-patient 18" tubing segment to create an occlusion.

Successful result: visual and audible OCC alarm is triggered and pump stops. The pump should stop within 2 seconds of the occlusion when set to 6 or BOL

Flow rate test

With pump stopped and IV set fully primed, set pump to desired flow rate and place output end of catheter (or needle) into a graduated cylinder or other container for measuring fluid volume. Please note that the opening of the measuring container must be at the same level as the pump. Press start/stop and stopwatch simultaneously to begin timed infusion. At the end of the time interval press start/stop again to stop the pump. Measure volume delivered volumetrically or gravimetrically. (If measuring volume by weight, divide weight of saline collected in grams by 1.009 to convert to ml.) Volume collected should be within ±15% of volume expected based on flow setting.

Successful result:

Setting	Time interval	Pump in spec if volume in this range (±15%)
6 or BOL	1 min	85 – 115 ml *
4	1 min	57 – 77 ml
2	1 min	28 – 38 ml
1	2 min	28 – 38 ml
0.2	10 min	28 – 38 ml

* If flows measured are consistently at the low end of the ranges, particularly at the 4 and 6 settings, it may be an indication of a clogged test cartridge or, if the results are consistently low with a new cartridge, there may be damage to the pump mechanism.

What to do if the pump fails one of these tests

Please contact Infusion Dynamics customer service at 800-805-1246 or by email at support@infusiondynamics.com to describe the problem. Please also provide the pump's serial number. If factory service is needed, Infusion Dynamics will provide an RMA# for the return.